ARS-2022F/2030LF
HDD Copy Controller

User's Manual

—— Ver: 1.0 ——

Attention:

It takes over 5 seconds to power on after shutdown otherwise the system may operate abnormally.

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ACARD TECHNOLOGY

WEEE Statement

WEEE Statement **English**

In order to cope with the increasing waste electrical and electronic equipment, reduce the use of landfill and incinerator, and prevent the harmful matter of waste equipment from entering the environment, the European Union (EU) has set the Directive on Waste Electrical and Electronic Equipment (WEEE) asking manufacturers to collect, recycle and treat waste electrical and electronic equipment properly. Member nations already established their free of charge recycle systems of WEEE before August 13, 2005. Accordingly, ACARD has to be responsible for recycling all products exported to Germany. You can return your ACARD product that needs recycling to a local collector.

WEEE Erklärung **German**

Mit dem Ziel die steigende Menge elektrischer und elektronischer Altgeräte zu bewältigen ohne hierzu unnötig Mülldeponien und Verbrennungsanlagen zu belasten und um die Verschmutzung der Umwelt durch freiwerdende Stoffe aus den Altgeräten zu vermeiden, hat die Europäische Union (EU) die Richtlinie über Elektro- und Elektronik-Altgeräte erlassen. Die Richtlinie verpflichtet Hersteller, elektrische und elektronische Altgeräte umweltgerecht einzusammeln, zu recyceln und zu entsorgen. Die Mitgliedsstaaten der EU haben bereits ihre kostenfreien Recyclesysteme konform der WEEE vor dem 13. August 2005 eingerichtet. Entsprechend der Richtlinie ist ACARD verantwortlich für die umweltgerechte Entsorgung aller nach Deutschland exportierten ACARD Produkte. Sie können Ihr zu entsorgendes ACARD Produkt zu Ihrer örtlichen Sammelstelle bringen.

AEEA verklaring **Dutch**

Met het doel de stijgende hoeveelheid afgedankte elektrische en elektronische apparatuur te beheersen zonder hiervoor onnodig stortplaatsen en verbrandingsovens te belasten en om de vervuiling van het milieu door vrijkomende stoffen uit de afgedankte apparatuur te voorkomen, heeft de Europese Unie (EU) de richtlijn betreffende afgedankte elektrische en elektronische apparatuur besloten. Deze richtlijn verplicht fabrikanten afgedankte elektrische en elektronische apparatuur in te zamelen, te recyclen en te verwijderen. De lidstaten van de EU hebben reeds de kosteloze recyclesystemen volgens de AEEA vóór de 13 augustus 2005 ingericht. Conform de richtlijn is ACARD verantwoordelijk voor de verwijdering van alle naar Nederland geëxporteerde ACARD producten. U kunt uw afgedankt ACARD product naar uw locale inzamelplaats brengen.

Elektrik ve Elektronik Madde Atıkları Demeci **Turkish**

Elektrik ve electronik madde atıklarının yukselmesiyle basedebilmek ,arazi doldurma ve cop yakma fırını kullanımını azaltmak,atık madde zararlarının cevreye yayılmasını onlemek icin Avrupa Birligi (AB),ureticilerden elektrik ve elektronik madde atıklarını gerektigi gibi toplamalarını,geri donusturmelerini ve kimyasal isleme tabi tutmalarını talep etmek icin Elektrik ve Elektronik Madde Atıkları uzerine bir direktif hazırladı.Topluluk uyeleri,13 Agustos 2005' ten once elektrik ve elektronik madde atıklarının ucretsiz geri donusum sistemlerini coktan olusturmuslardı.Bundan dolayı, ACARD, Almanya'ya ihrac ettigi butun urunlerin geri donusumunden sorumludur. ACARD urunleri geri donusum gerektirirse yerel toplayıcılara geri verebilirsiniz.

WEEE бюлетень **Russian**

Чтобы справиться с увеличивающимся ненужным электрическим и электронным оборудованием, уменьшите использование закапывания мусора и использования установки для сжигания отходов, препятствуйте вредному выбросам загрязнять окружающую среду, Европейский союз (ЕС)установил Директиву по Ненужному Электрическому и Электронному Оборудованию (WEEE) для того, чтобы изготовителей собрали, перерабатывали и вообще проявили внимание к ненужному электрическому и электронному оборудованию должным образом. Члены нации установили бесплатную систему переработки WEEE до 13 августа 2005. Соответственно, ACARD обязан быть ответственным за то, что переработал все продукты, экспортируемые в Германию. Вы можете возвратить ваш продукт ACARD, который нуждается в рециркуляции местному сборщику.

WEEE Statement **French**

Afin de gérer la quantité croissante de déchets électriques et électroniques, de réduire l'utilisation des décharges et des incinérateurs et d'éviter que des déchets nocifs ne polluent l'environnement, l'Union Européenne a publié la directive WEEE sur les déchets électriques et électroniques. Celle-ci spécifie que les fabricants doivent collecter, recycler et traiter l'équipement électronique et électrique usagé. Depuis le 13 août 2005, les pays membres ont mis en place un système de recyclage gratuit selon le WEEE.

De ce fait, Acard est responsable du recyclage de tous les produits exportés vers l'Allemagne. Vous pouvez mettre au rebut votre équipement ACARD usagé dans votre centre local de recyclage.

Pour plus d'informations sur les lieux de mise au rebut des équipements usagés destinés au recyclage, veuillez contacter votre mairie, votre service de traitement des déchets ménagers ou le magasin où vous avez acheté le produit.

RAEE **Spanish**

Con la finalidad de reducir el incremento de residuos eléctricos y de material electrónico, reduciendo el uso de los vertederos e incineradoras y prevenir el preocupante aumento del contacto de estos residuos con el medio ambiente. Por este motivo la Unión Europea ha fijado la Directiva de Residuos de Aparatos Eléctricos y Electrónicos (RAEE) solicitando a los fabricantes la recolección, reciclaje y tratamiento de ests residuos correctamente. Los paises miembros ya han establecido su sistema de reciclaje gratuito de RAEE antes del 13 de Agosto del 2005. Por este motivo ACARD es el responsable del reciclaje de todos los productos exportados a Alemania. Usted puede devolver su producto ACARD a un punto de recogida local cuando desee reciclarlo.

Dichiarazione WEEE **Italian**

Per far fronte all'aumento dei residui delle apparecchiature elettriche ed elettroniche, ridurre l'uso di materiale di riporto e degli inceneritori, ed impedire che il materiale nocivo delle apparecchiature residue entri a contatto con l'ambiente, l' Unione Europea (UE) ha stabilito le Direttive sui Residui delle apparecchiature Elettriche ed Elettroniche (WEEE) chiedendo ai fornitori di raccogliere correttamente, riciclare e trattare le apparecchiature elettriche ed elettroniche residue. Le nazioni facenti parte dell' Unione Europea hanno già stabilito il loro sistema gratuito di riciclaggio di questo materiale (WEEE) prima del 13 agosto 2005. Di conseguenza, ACARD è responsabile del riciclaggio di tutti i prodotti esportati in Germania. Potete restituire il vostro prodotto acquistato da ACARD che deve essere riciclato da un' azienda specifica locale.

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Chapter 1 Introduction

1.1 Overview

ARS-2022F and ARS-2030LF are standalone Copy Controllers supporting hard disk drives. The former is a 1-to-1 model while the latter 1-to-3. Simply through the LCD and 4 buttons on the panel, you can copy any kinds of files on the hard dirve easily and quickly. It is fit for companies to back up data, or for PC assemblers to do legal production.

Usually if you want to back up data on many hard drives, you have to boot the computer, and do the job via Ghost or other recording programs. It takes time to learn how to use the software and more time to duplicate. In view of this, ACARD has launched ARS-2022F and ARS-2030LF to simplify the duplication.

1.2 Features

- Standalone IDE to IDE HDD copy controller
- Independent device without extra hardware or software
- Supports high-speed 1-to-1 (2022F) / 1-to-3 (2030LF) HDD duplication
- User-friendly interface with LCD showing messages
- Optional functions for application

1.3 Specifications

- ACARD SOC Engine
- 8MB SDRAM memory
- 2 (2022F) / 4 (2030LF) independent IDE channels
- 2 × 16 text mode of LCD
- 4 membraned buttons on the panel

- 256K bytes flash memory
- Supports firmware update from DVD-ROM
- Power Voltage: 5VB±5%, Current: 1.5A Max
- Environment Operation: 0°C ~ 60°C
- Nonoperation: -20°C ~ 85°C
- Humidity 15% to 90%
- Dimension D: 145mm W: 148mm H: 42mm

1.4 System Requirement

The requirements are all optional.

- upright external case 2 (2022F) / 4 (2030LF) × 5.25”
- Power supply of 250W (for 2022F)
- Power supply of 300W and above (for 2030LF)
- ATA133 cable
- Hard drive
- HDD tray

Chapter 2 Installation

2.1 The Appearance

2.1.1 ARS-2022F

The appearance of ARS-2022F is as the following two figures show.

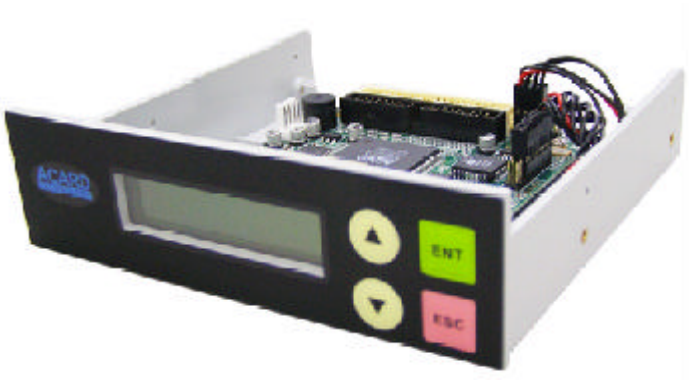


Figure 2-1a

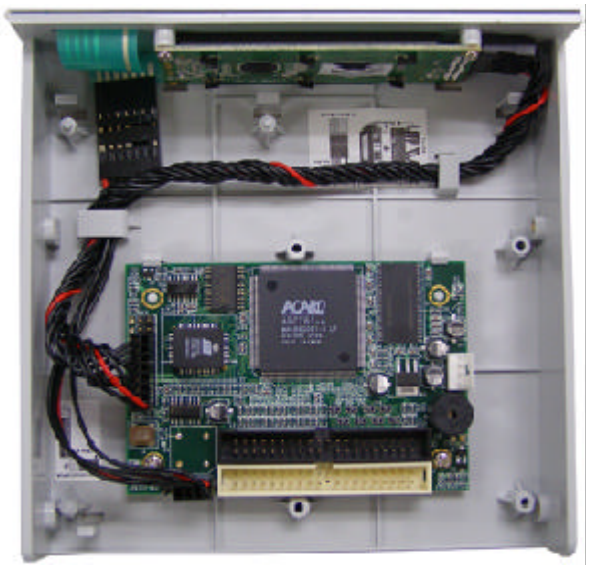


Figure 2-1b

2.1.2 ARS-2030LF

The appearance of ARS-2030LF is as the following two figures show.

Figure 2-2a

Figure 2-2b

2.2 Before Installation

In the case of ARS-2022F, prepare 2 hard drives. One is used as a source hard drive and the other as a target one. While in the case of ARS-2030LF, prepare 4 hard drives. One is used as a source hard drive and the remaining three as target ones. The capacity of the target hard drive must be equal to or larger than that of the source one. It is recommended to set all hard drives as Master. Besides, be sure that the wattage of power supply is sufficient.

2.3 Installation Steps

2.3.1 ARS-2022F

1. Connect the source HDD to the white IDE port(A) on 2022F with an IDE cable.
2. Connect the target HDD to the black IDE port(B) on 2022F with an IDE cable.
3. Connect the power supply to CN11(C) on 2022F with a Y-power cable.

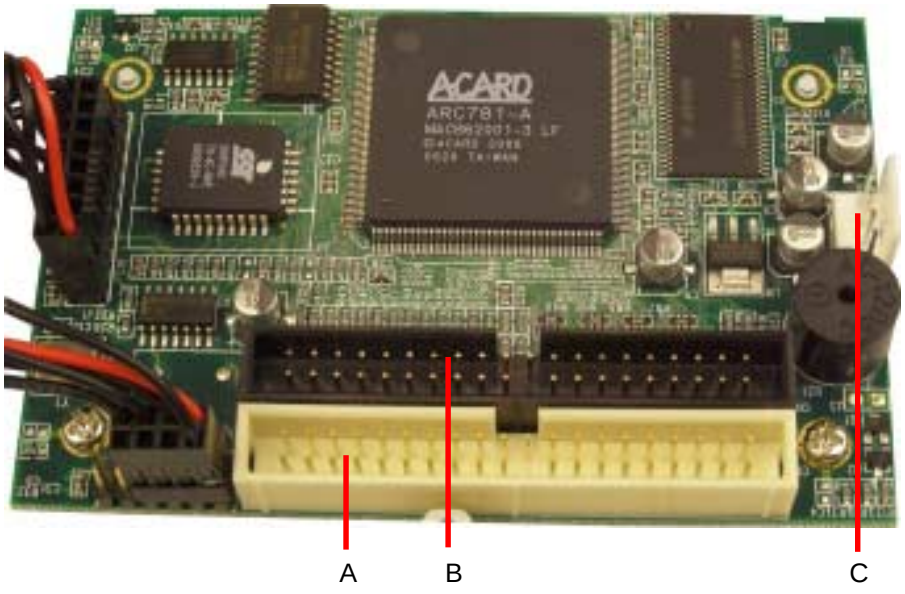


Figure 2-3

4. Connect the power supply to all hard drives with Y-power cables.

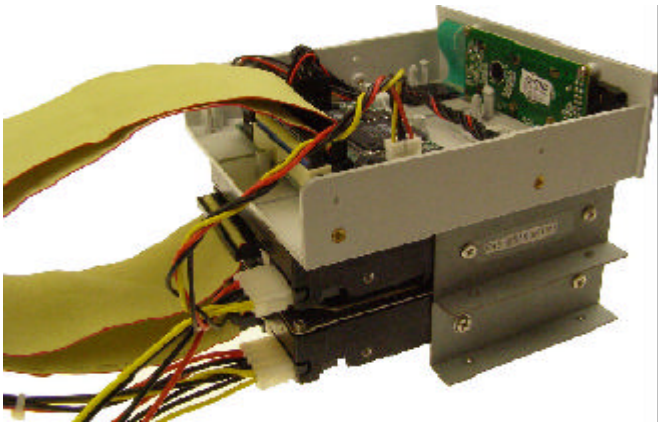


Figure 2-4

2.3.2 ARS-2030LF

1. Connect the source HDD to IDE0 (the white port) on 2030LF with an IDE cable.

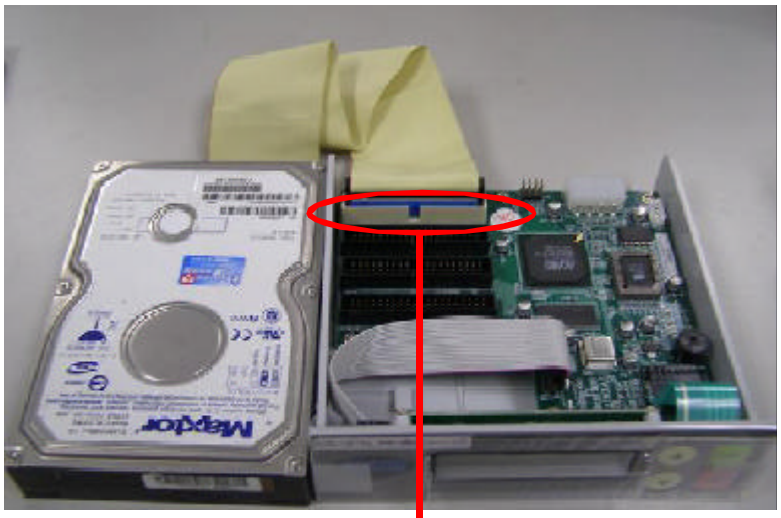


Figure 2-5a

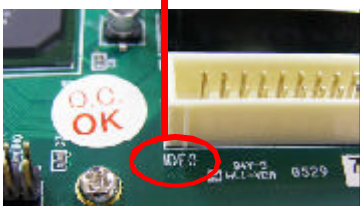


Figure 2-5b

2. Connect the 3 target hard drives to IDE1, IDE2, IDE3 (the black ports) on 2030LF with 3 IDE cables separately.

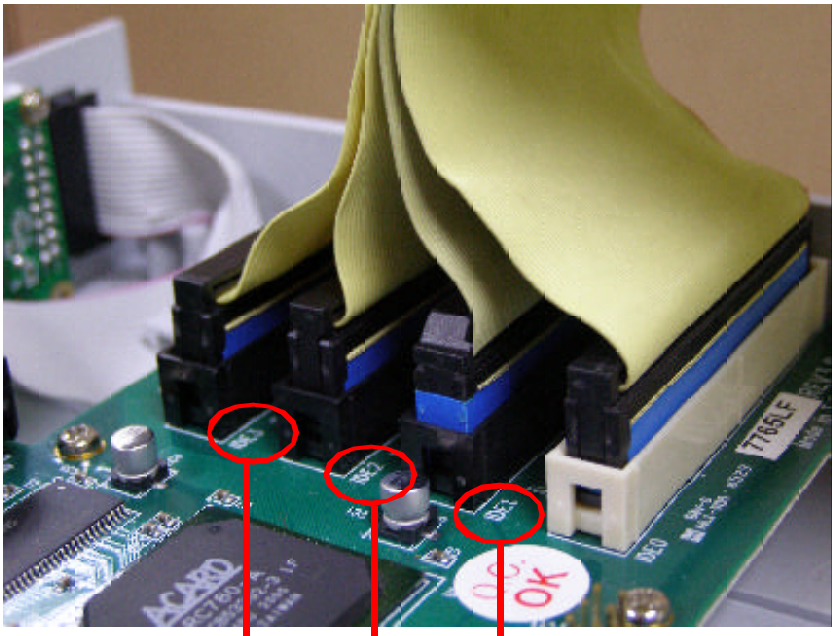


Figure 2-6

3. Connect the power supply to CN7 on 2030LF with a Y-power cable.

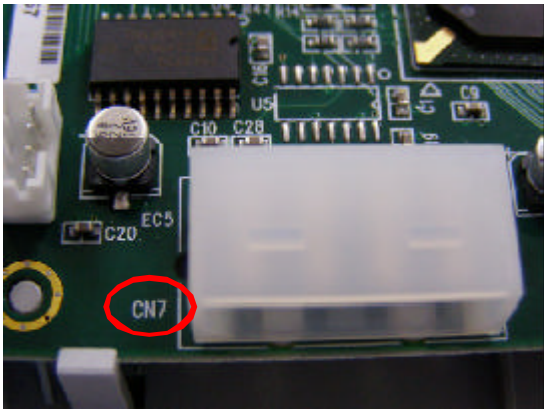


Figure 2-7

4. Connect the power supply to all hard drives with Y-power cables.

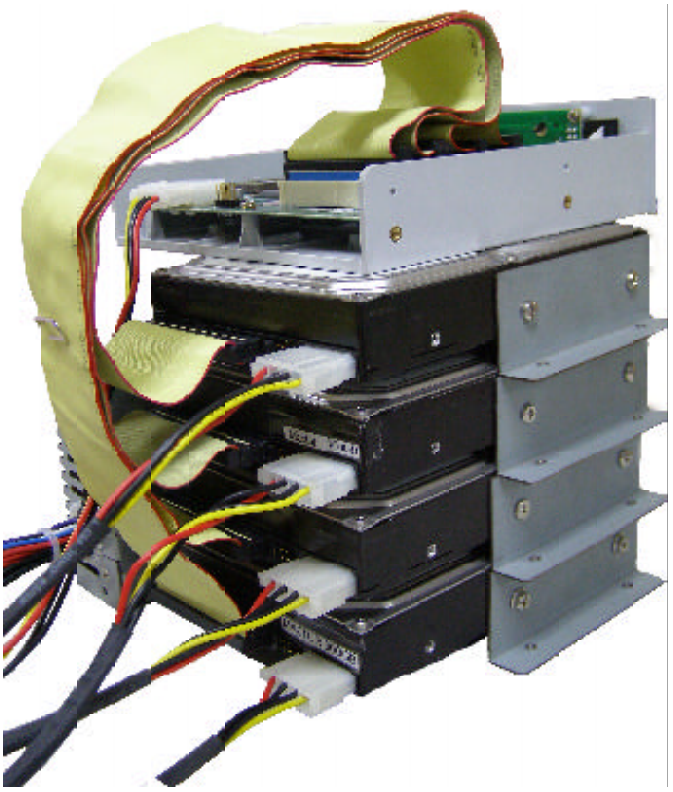
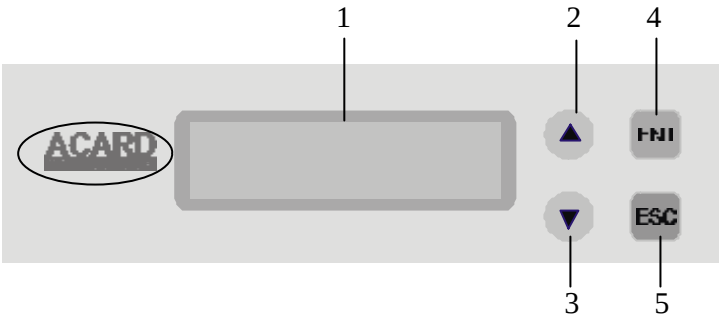


Figure 2-8

Chapter 3 The Buttons & LCD

Now take ARS-2022F to demonstrate. It has 4 buttons and an LCD on the panel.



1. It shows functions and messages.
2. It is used to scroll up through functions or menus.
3. It is used to scroll down through functions or menus.
4. It is used to execute a selected function.
5. It is used to cancel a selected function.

Figure 1

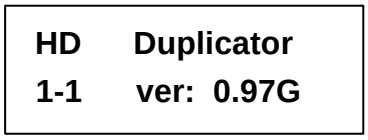


Figure 2

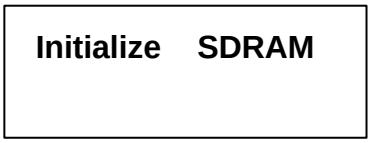


Figure 3

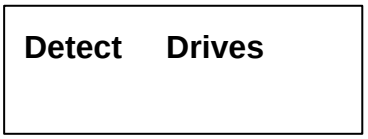


Figure 4

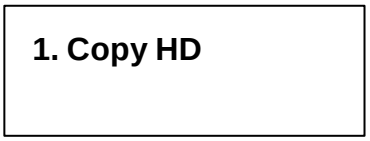
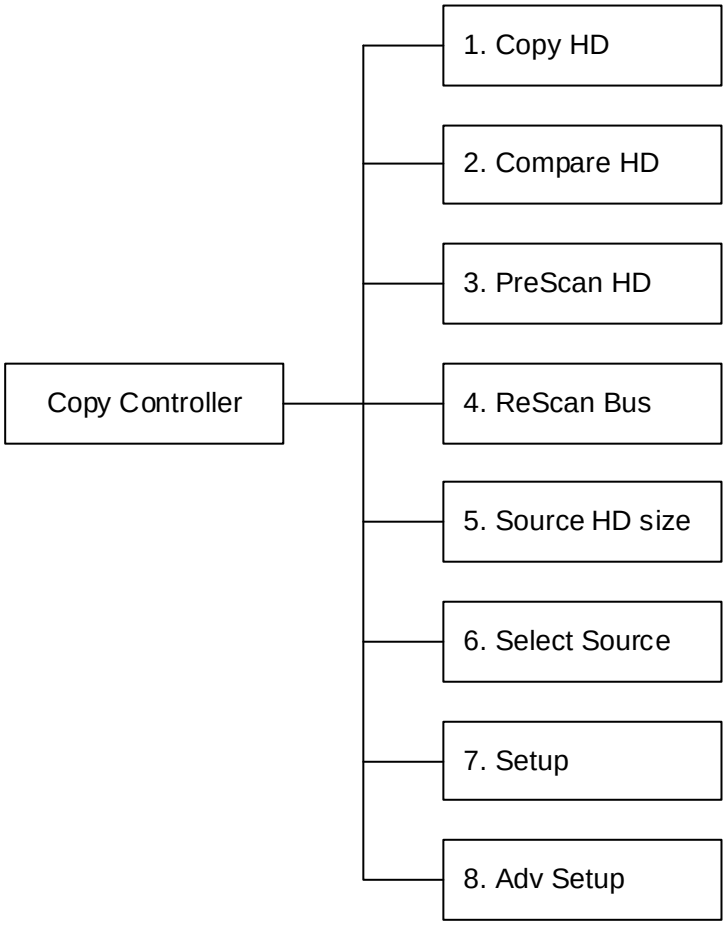


Figure 1 shows the firmware version of ARS-2022F, Figure 2 the memory initialization, Figure 3 the scanning of the drives, and Figure 4 the first function.

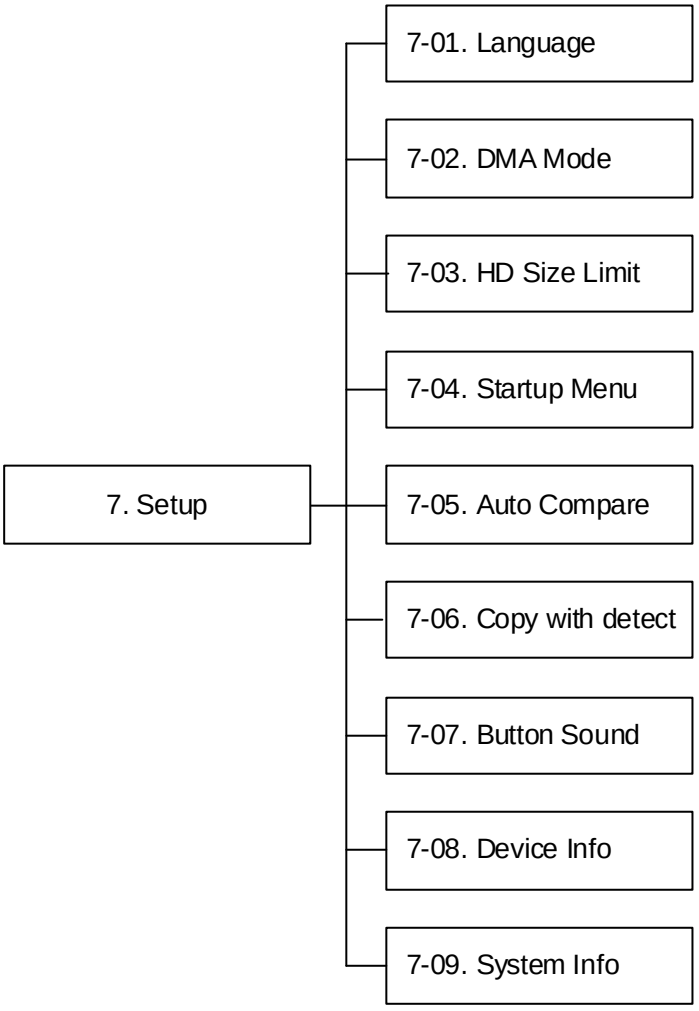
The correct display of the four figures means the normal powering up.

Chapter 4 Functions

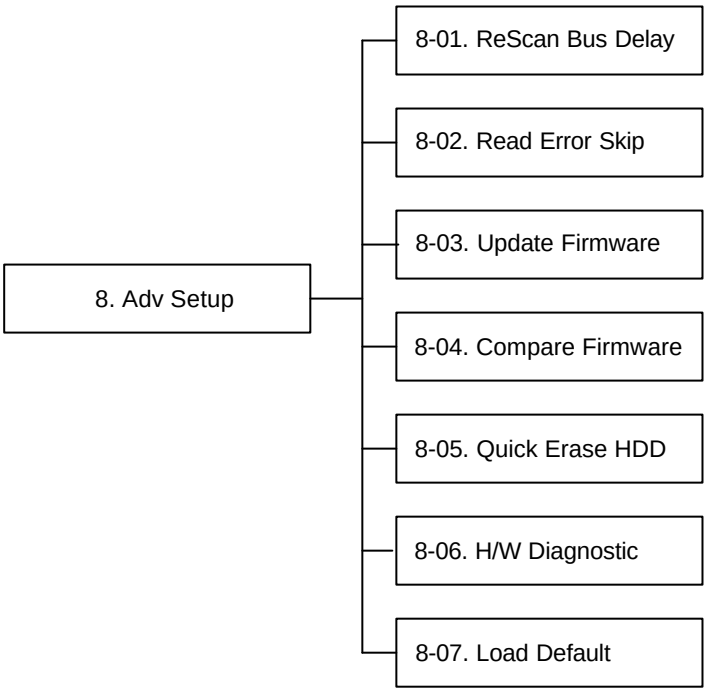
There are 8 major functions in ARS-2022F, and there are subfunctions in Function 7 and Function 8 as the following figures show.



In Function 7 there are 9 subfunctions.



In Function 8 there are 6 subfunctions. This function is a hidden menu. It appears only when you hold down ESC for 3 seconds.

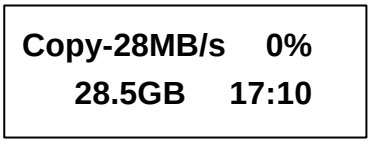


4.1 Copy HD

Function 1 Copy HD is to copy data from a source hard drive to a target one. Before copying be sure that the capacity of the target hard drive is equal to or larger than that of the source one.

Select function 1.

Press **ENT** to start copying. After ARS-2022F detects the hard drive, the LCD will show the copying information as follows.



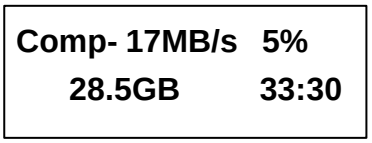
When copying is in work, GB and time will decrease while the percentage of completion will increase. The copying speed, capacity and time are different from one source hard drive to another. When copying comes to an end, the LCD will show the results as follows.

4.2 Compare

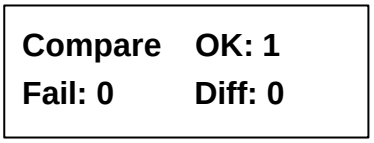
Function 2 Compare is to compare the data of the source hard drive and those of the target hard drives.

Select function 2.

Press **ENT** to compare. The LCD will show the comparison information as follows.



When comparison comes to an end, the LCD will show the result as follows.

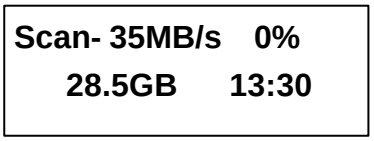


4.3 PreScan

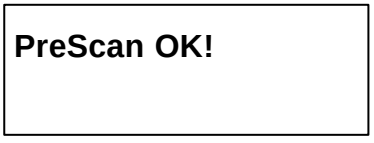
Function 3 PreScan is to scan if the source hard drive can be read correctly, and to test the reading speed too.

Select function 3.

Press **ENT** to prescan. The LCD will show the scanning information as follows.



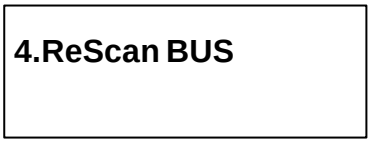
When scanning finishes, and the source hard drive can be read correctly, the LCD will show the result as follows.



4.4 ReScan Bus

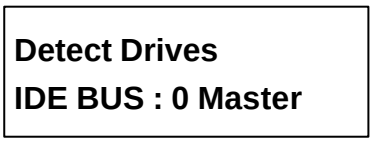
Function 4 ReScan Bus is to scan the hard drives on the bus again.

Select function 4.

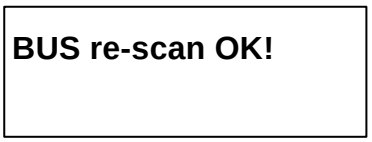


Press **ENT** to rescan. The LCD will show the inquiry as follows.

Press **ENT**. The order of scanning is IDE BUS0 ~ IDE BUS1.



When scanning finishes, the LCD will show the result as follows.

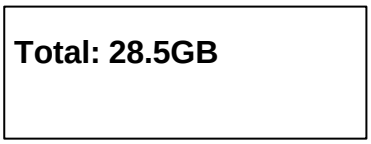


4.5 Source HD size

Function 5 Source HD size is to display the capacity of the source hard drive.

Select function 5.

Press **ENT**. The LCD will show the information as follows.

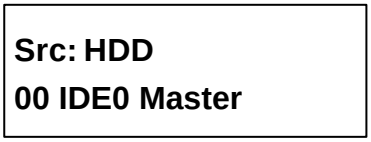


4.6 Select Source

Function 6 Select Source is to set a source hard drive on the IDE bus.

Select function 6.

Press **ENT**. The LCD will show the information as follows. Use ▲ ▼ to select. The default is IDE0.



Press **ENT** to select. The LCD will show the result as follows.

HDD selected!

4.7 Setup

Function 7 Setup lets you change a configuration. Once you change it, remember to press **ENT** to save. However, it is suggested to use defaults for the optimal operation. This function includes 9 subfunctions: Language, DMA Mode, HD Size Limit, Startup Menu, Auto Compare, Copy with detect, Button Sound, Device Info, and System Info as the figure on page 17 shows.

Select function 7.

7.Setup

4.7.1 Language

This function lets you select a language to show messages on the LCD.

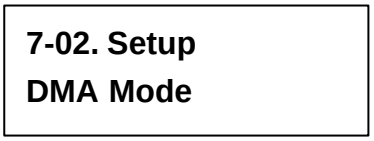
7-01. Setup **Language**

Press **ENT**. Currently English is the only choice.

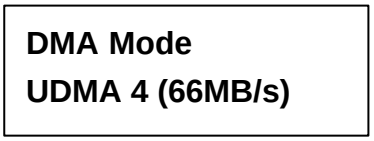
Language **English**

4.7.2 DMA Mode

DMA means direct memory access. This function can quicken the transfer rate by sending the data directly to memory without the process of CPU.

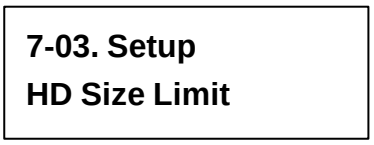


Press **ENT**. The LCD will show the information as follows. Use ▲ ▼ to select.

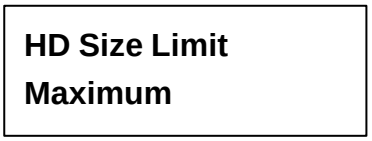


4.7.3 HD Size Limit

This function lets you set the copying capacity of a source hard drive.



Press **ENT**. The default is Maximum.



Maximum: take the capacity of the source hard drive as the copying capacity.
No limit: compare a source hard drive with a target one, and then take the capacity of the smaller one as the copying capacity. See the example below.

Source (100GB) & target (200GB) ⟶ Source (100GB)
Source (200GB) & target (100GB) ⟶ Source (100GB)

4.7.4 Startup Menu

This function lets you select any one of the functions except Setup as the first item appearing on the menu whenever you turn on the copy controller.

7-04. Setup
Startup Menu

Press **ENT**. The default is Copy HD. You certainly can select any other function as the first item, but remember to press **ENT**.

Startup Menu
1.Copy HD

4.7.5 Auto Compare

This function is to compare the source hard drive and the target one automatically after copying.

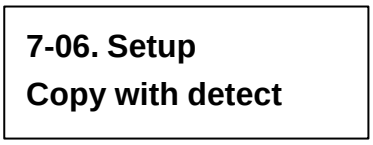
7-05. Setup
Auto Compare

Press **ENT**. The default is Off. You can press ▼ to select On.

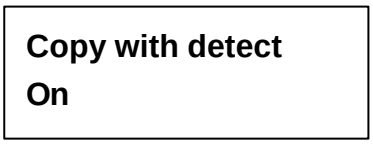
Auto Compare
Off

4.7.6 Copy with detect

This function is to detect if there is a DOM (Device on Memory, can be used as HDD and supports hot swap) on an IDE slot before copying.



Press **ENT**. The default is On. You can press ▼ to select Off.



4.7.7 Button Sound

This function lets you decide whether to produce the sound of a button when you press it or not.

Press **ENT**. The default is On. You can press ▼ to select Off.

4.7.8 Device Info

This function is to display the information of all hard drives connected to ARS-2022F, including the model and the firmware version.

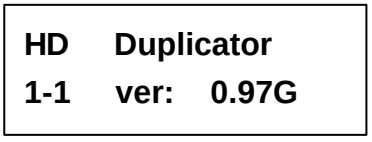
Press **ENT**.

Press **ENT**.

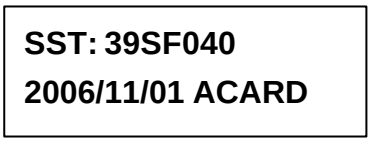
4.7.9 System Info

This function is to display the information of the system.

Press **ENT**.



Press **ENT**.



4.8 Adv Setup

Function 8 Adv Setup lets you change the system configuration. It includes ReScan Bus Delay, Read Error Skip, Update Firmware, Compare Firmware, Quick Erase HDD, H/W Diagnostic, and Load Default as the figure on page 18 shows.

Hold down ESC for 3 seconds to enter Function 8.

4.8.1 ReScan Bus Delay

This is for those who want to scan their SATA hard drives on the bus. However, currently you have to use ACARD SATA converter AEC-7900AH if you intend to scan your SATA hard drive.

Press **ENT**. There are 1 second, 2 seconds to 60 seconds of delay time to choose in scanning. Press ▼ to select the time. Lengthen the delay time if your hard drive cannot be detected in a second or two.

4.8.2 Read Error Skip

Now press **ESC** and ▼. This is to ignore any error that occurs during copying. Under normal circumstances, when an error occurs during copying, a message will appear on the LCD. Yet, you can use Read Error Skip to neglect the bad sector of a hard drive.

8-02. Adv Setup
Read Error Skip

Press **ENT**. The default is Off. Press ▼ to select On.

Read Error Skip
Off

4.8.3 Update Firmware

Now press **ESC** and ▼. This is to update firmware to the latest version. But you should get the version first.

8-03. Adv Setup
Update Firmware

You can get the newest firmware version from ACARD by e-mail, or download it directly from the web site: **http://www.acard.com** Then, unzip the file but if the file is .bin, you don't need to unzip. Copy the file to a blank disc using some recording software.

Turn off ARS-2022F and connect a DVD-ROM to the white port. After turning on, place the disc containing the new firmware into DVD-ROM, and press **ENT**. The system will begin searching the new firmware, and show the message on the LCD after it finds it. Press **ENT** to update.

Searching F/W--- **XXX/XXXXX**

4.8.4 Compare Firmware

Now press **ESC** and ▼. This is to compare the current firmware version and the newly downloaded one to see if the latter is newer.

8-04. Adv Setup **Compare Firmware**

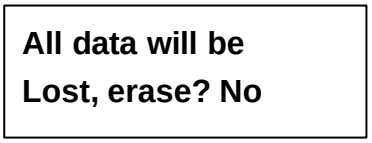
4.8.5 Quick Erase HDD

Now press **ESC** and ▼. This is to erase the data of a hard drive quickly.

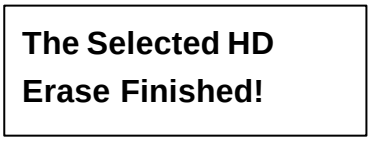
8-05. Adv Setup **Quick Erase HDD**

Press **ENT**. Use ▲ ▼ to select a hard drive on the IDE bus.

Press **ENT**. Use ▲ ▼ to select Yes or No.

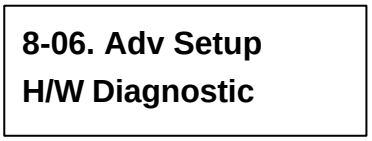


Use ▲ to select Yes. After completion, the following figure will appear.



4.8.6 H/W Diagnostic

Now press **ESC** and ▼. This is to test the system.



Press **ENT** to enter the following figure. The system will do the button test, self-test of SDRAM, the hardware connection test and flash test. All test results will be shown on the LCD. It is the easiest way to know if the system can work well.

When all tests finish, the LCD will show the message as follows.

Test finished

4.8.7 Load Default

Now press **ESC** and ▼. This is to make all configurations return to defaults.

8-07. Adv Setup **Load Default**

Press **ENT**. Use ▲ ▼ to confirm Yes or No.

Load Default **Config? Yes**

When default loading finishes, the LCD will show the result as follows.

Load Default **OK**

Chapter 5 Troubleshooting

5.1 About LCD

After you power up ARS-2022F/2030LF, if there is no display on the LCD, check if the connection of power cord is firm and the power outlet is normal.

5.2 About Error Messages

During Copy, Compare, etc. if you press **ESC** to abort, an error message will appear on the LCD. That will probably cause ARS-2022F/2030LF to hang up, so you have to power on again.

5.3 About HDD

If a hard drive cannot read, confirm if the cable and the power are normal.

5.4 About Buttons

If you press any of the four buttons on the panel, but there is no response, it is perhaps that the button cannot function well. Inspect if the cables on the control board of ARS-2022F/2030LF are loose.

5.5 About Firmware Update

If you cannot update the firmware, inspect it. Perhaps you have downloaded a wrong file. Unsuccessful firmware update may cause ARS-2022F/2030LF to fail in booting. Under the circumstance, return the control board to distributor for repair.

Technical Support Form

Email: **support@acard.com**
http://www.acard.com

Model	ARS-2022F/2030LF	**F/W Version**	
System Configuration			
Motherboard			
BIOS Version			
SCSI Adapter			
Chipset			
Memory			
Display Card			
Other I/O Card			
OS Version			
HDD Configuration			
HDD Model			
Capacity			
Firmware Version			
Other			
Problem Discription			